

GUY'S HOSPITAL REPORTS

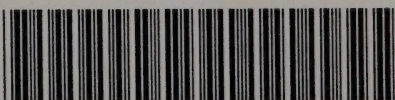
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EDITORIAL NOTICES

1. Papers for publication and editorial communications should be addressed to Dr. A. F. Hurst, Guy's Hospital, London, S.E.1.

2. Business communications regarding subscriptions, change of address, advertising, etc., should be addressed to the Managers, Oxford Medical Publications, 17, Warwick Square, Newgate Street, London, E.C.4.

3. The following papers are amongst those which will appear in forthcoming issues of the Reports :

J. Fawcett : Addison and Addison's Anæmia.

W. Hale White : Bright's Contributions to Medicine apart from Kidney Disease.

G. H. Hunt and M. S. Pembrey : Test of Physical Efficiency.

A. D. Fripp : Internal Derangements of the Knee-Joint.

A. F. Hurst and R. S. Rowland : Hour-Glass Stomach.

J. A. Ryle and T. I. Bennett : Further Studies in Gastric Secretion.

H. W. Barber : Pathogenesis of Lupus Erythenatosus.

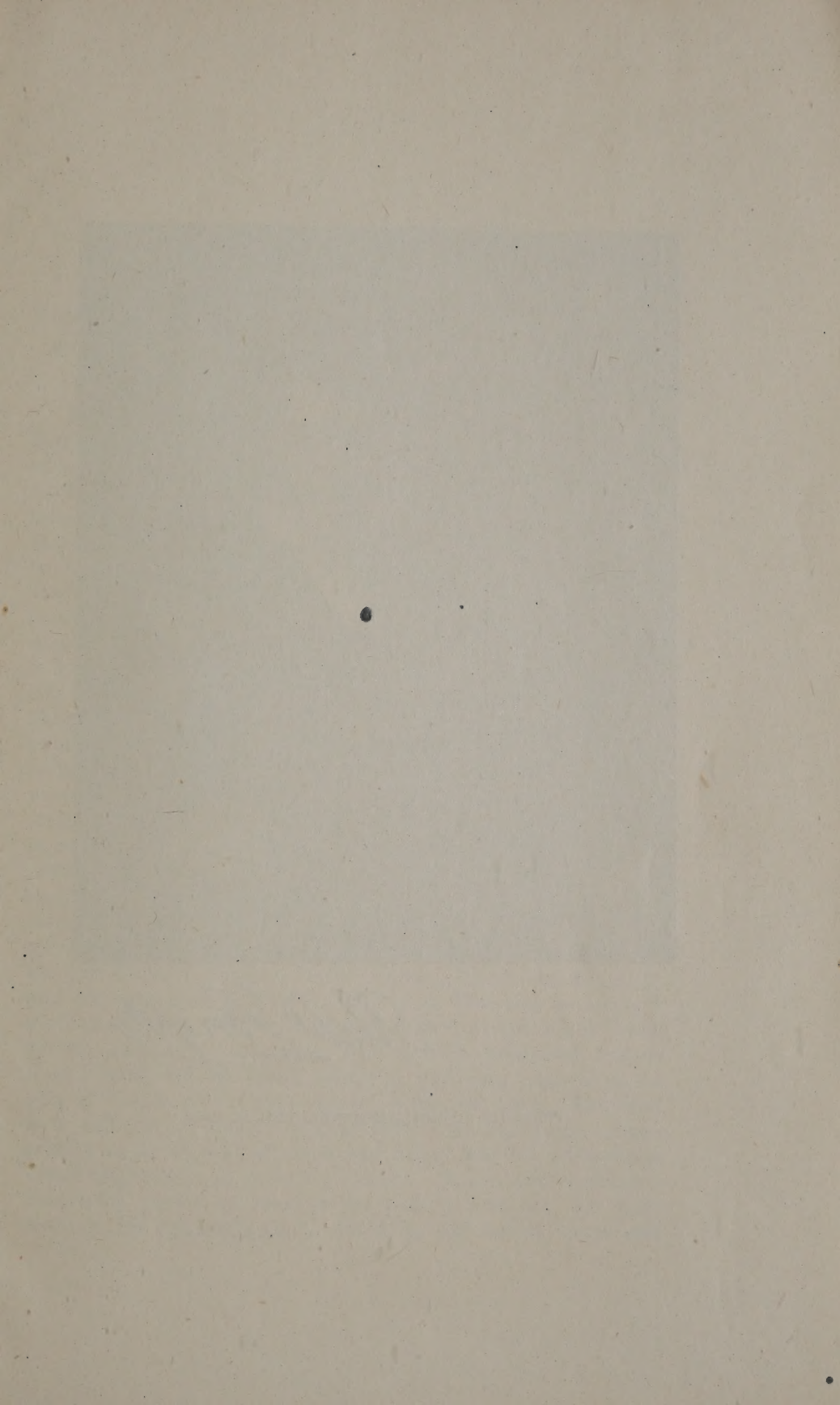
L. S. Debenham, J. Joffre and M. S. Pembrey : Observations on Secretion of Urine in a case of Ectopic Vesicæ.

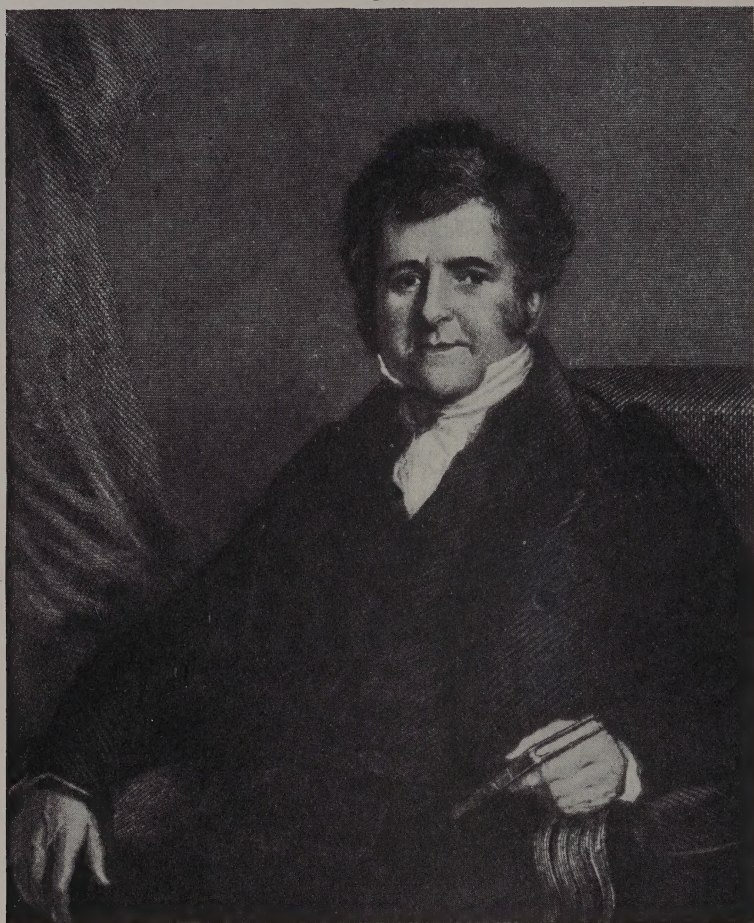
Discussion on Rheumatoid Arthritis by various authors.

4. Readers are invited to send for publication short communications or criticisms on papers appearing in the Reports. These will be submitted to the writer of the original paper, so that he may reply in the same issue of the Reports.

5. Authors are allowed fifty reprints of their papers gratuitously. Additional copies may be had at cost price.

6. Owing to the extreme indefiniteness of what can be regarded as the termination of the War, and the consequent difficulty of deciding just when the records of the doings of Guy's men in the War can be regarded as final and complete, the issue of the last volume of the old series of Guy's Hospital Reports in the form of a War Memorial Volume has been unavoidably delayed; and although much of it is in print the issue of the volume itself is not anticipated before Easter of 1921.





Rich^d Bright

PHYSICIAN TO GUY'S HOSPITAL, 1820 TO 1843

RICHARD BRIGHT

AND

HIS DISCOVERY OF THE DISEASE BEARING HIS NAME

By SIR WILLIAM HALE-WHITE, K.B.E., M.D., Consulting Physician
to Guy's Hospital.

RICHARD BRIGHT was born at Queen Square, Bristol, on September 28, 1789. He was the third son of Richard Bright, who lived at Ham Green, Somerset, and was a member of the banking firm Ames, Bright and Cove. Young Bright went to school at Bristol and Exeter, and in 1808 began to study medicine at Edinburgh. In 1810 he accompanied Sir George Mackenzie to Iceland and wrote the botanical and zoological parts of Mackenzie's *Travels in Iceland*. The book is beautifully illustrated, and some of the smaller drawings are by Bright. Mackenzie speaks of his pleasing manners, his cheerful and ready exertion, and his undeviating good humour. On his return he lived for two years in the house of one of the resident officers in Guy's Hospital, where he continued his medical studies, reading a paper before the Medico-Chirurgical Society on cases of erysipelas he had seen at Guy's between May and July, 1811. In the same year he also read a paper before the Geological Society on the strata in the neighbourhood of Bristol. In 1812 he returned to study at Edinburgh and graduated M.D. on September 13 with a thesis on erysipelas. From Edinburgh he went to Cambridge and was two terms at Peterhouse, but left there to come to London, where he became a pupil at the Public Dispensary under Dr. Bateman. In 1814 he started on a tour through Holland, Belgium, Berlin, Vienna, Austria and Hungary, and on his return in 1815 he arrived at Waterloo a fortnight after the battle. He observed and studied everything he came across, medical or otherwise, and in 1818 published *Travels from Vienna through Lower Hungary, with some remarks on the state of Vienna during the Congress in the year 1814*. The book is a well-printed quarto of over seven hundred pages, entertaining as an account of travel and full of detailed information which ought to be of value to students. It exemplifies Bright's wonderful power of observation and description, his wide reading, his accuracy, as is shown by the tables, maps and

appendices, and his artistic ability, for it is illustrated by beautiful engravings from sketches by himself. Medical allusions are few, but the leading doctors of Vienna are described, especially De Carro, a pupil of Jenner's, who had his own children vaccinated and was the means of introducing vaccination extensively. Most of the patients in the Viennese hospitals paid; there was a lying-in hospital into which women were admitted secretly, and they left without any revelation of their identity.

On December 23, 1816, Bright was admitted a licentiate of the Royal College of Physicians, and shortly afterwards he was elected Assistant Physician to the London Fever Hospital, where he caught a severe attack of fever, from which he nearly died. In 1818 he travelled for nearly a year through Germany, Italy and France. In 1820 he returned to London, took a house in Bloomsbury Square, and was in this year elected Assistant Physician to Guy's Hospital, resigning his position at the Fever Hospital. In 1821 he was elected an F.R.S., in 1824 full Physician to Guy's, and in 1832, although only a licentiate, he was, with applause, elected a Fellow of the College of Physicians. In 1837 he was President of the Royal Medico-Chirurgical Society. He resigned his post of Physician to Guy's in 1843. By 1831 he had removed to 11 Savile Row, where he died of aortic disease on December 16, 1858. The very good life of him in the *Dictionary of National Biography* is by Dr. J. F. Payne. Sir Samuel Wilks gives an excellent account in the *Biographical History of Guy's Hospital*, and obituary notices are to be found in the *Lancet* and *Medical Times and Gazette* at the time of his death. There is a tablet on the south wall of St. James, Piccadilly, with this inscription: "Sacred to the memory of Richard Bright, M.D., D.C.L., Physician Extraordinary to the Queen, Fellow of the Royal Society and other learned Bodies. He departed this life on 16 December, 1858, in the sixty-ninth year of his age. He contributed to medical science many discoveries and works of great value and died while in the full practice of his profession, after a life of warm affection, unsullied purity and great usefulness."

Richard Bright was an extraordinary man. It is impossible to place geniuses in order, but he would certainly be among the first five or six in our profession. To him and to a few others an altogether marvellous power of observation has been given, but Bright's genius took him further than mere observation, however brilliant, for he could correlate his observations.

Dropsy must have been recognised ever since it appeared in the human race, and long before Bright's time it was known that the urine sometimes coagulated on boiling; even atrophied

kidneys had been noticed. But, as will presently appear, Bright by his observations was able to say disease of the kidney is the cause of albuminuria, dropsy and many other symptoms, and of post-mortem appearances which he enumerates.

This was such an important discovery that it has overshadowed others that he made, but he carried out clinical observations and post-mortem examinations in almost every disease, and indeed paid most attention to diseases of the nervous system. He records a case in which there were right-sided fits, and says "my reason for supposing the epileptic attacks depended upon a local affection . . . was the degree of consciousness which was observed to be retained during the fits." He expected to find a lesion on the left side of the brain, and the post-mortem examination showed he was correct. Thus he was a pioneer in the subject of cerebral localisation. He was one of the first who described acute yellow atrophy of the liver, pigmentation of the brain in miasmatic melanæmia, condensation of the lung in whooping-cough, and the mitral murmur in chorea.

He was not narrow, for we have seen that he was a traveller, a geologist, an artist, a writer and a linguist. He was an indefatigable worker, and for many years spent six hours daily at the Hospital. He was a cheerful, attractive, honourable man, admired by his profession, who frequently sought his help in consultation, beloved in this country and better known throughout the civilised world than any British physician since Harvey. The affectionate relations between him and the students is seen in the fact that they asked him to reprint an address to them which he gave in 1832. We shall see how his colleagues at Guy's liked to help him. He inspired the younger men to aid him in his researches, but was always most careful to acknowledge the assistance given. He was ungrudging in his admiration for the work of others and was intensely proud of Guy's Hospital and its Museum.

The Lancet of December 25, 1858, said: "The sudden and unexpected demise of Dr. Bright has created a deep impression of grief and regret such as only a sense of irretrievable loss could occasion. In him all felt that the medical profession of England had lost one of the most original, observant and philosophic minds. A man of peculiar independence of thought, of high *morale* and untiring energy, he contributed more perhaps than any other to form the medical opinion of his day. . . . By the singular devotion to pathological investigation which characterised his career, he was at once enabled to accomplish investigations which have immortalised his name."

This very brief account of this great man is only to introduce to the reader the object of this paper, namely, to give in Bright's own words an account of his famous discovery of the disease named after him.

In the year 1827 there appeared the first of the renowned two volumes by Richard Bright, entitled *Reports of Medical Cases selected with a view of illustrating the symptoms and cure of diseases by a reference to Morbid Anatomy*. The book is dedicated to Benjamin Harrison, the Treasurer, and to William Babington, who, having retired from the active staff of Guy's Hospital, was now one of the Governors. It, like all Bright's work, is essentially Guy's work, for almost all his observations were made in the Hospital. In the preface he says: "It is my wish in thus recording a number of cases, to render the labours of a large Hospital more permanently useful, by bringing together such facts as seem to throw light upon each other. . . . To connect accurate and faithful observation after death with symptoms displayed during life, must be in some degree to forward the objects of our noble art. . . . Amongst the observations contained in this volume, there are some of which I must bear the responsibility alone. Such are the statements and conjectures regarding the dependence of a peculiar class of Dropsies on disease and irritation of the kidneys; such are some observations on peculiar changes in the structure of the liver, in the investigation of which, however, as in many other cases, I have been kindly assisted by my friend Dr. Bostock. . . . And such are the hints thrown out on the influence of the peculiar state of the mesenteric absorbents on the symptoms of Phthisis. There are other subjects, on the contrary, where I write with greater confidence, because borne out by the testimony of my contemporaries. . . . The work which I now commence will not, in theory at least, be thoroughly completed, until every disease which influences the natural structure, or originates in its derangements, has been connected with the corresponding organic lesion. . . . I have the satisfaction of feeling that each volume, whether it finally form a part of an extensive work on Morbid Anatomy or not, will in the meantime be complete within itself as a volume of Hospital Reports.

"It is a pleasing, and yet no easy task, to acknowledge the kindness of those many friends who in various ways have assisted me in this undertaking. I may truly say that I have met with the most cheerful compliance in all my wishes from everyone connected with our establishment.

"14, Bloomsbury Square,

"August 10th, 1827."

The subjects treated of in Volume I are diseases of the kidney in association with anasarca and albuminuria, diseases of the liver with anasarca and ascites, diseases of the thorax followed by dropsy, diseases of the lungs, and diseases of the intestines in fever. Volume II was published three years later and consists of two parts, each larger than Volume I. The two volumes contain sixty-five hand-coloured plates, which are as beautifully executed as possible; the colours to-day are still perfect. The second volume is entirely occupied with diseases of the nervous system. In the preface to it Bright says, "My opportunities have increased . . . by the great augmentation in the sumptuous Hospital to which I am attached, and in which I am proud to say that my colleagues, whether medical or surgical, have by their unremitting kindness shown how little jealousy interferes between the two professions."

Here we are only concerned with Bright's work on diseases of the kidney and albuminuria, and, as far as possible, I will give it in his own words. The most celebrated part of his *Reports* is the first 126 pages of Volume I. This section is entitled, "Cases illustrative of some of the appearances observable on the examination of Diseases terminating in Dropsical effusion." He begins by reminding the reader that one great cause of dropsical effusion appears to be obstruction to the venous circulation. But, says Bright, "There are other appearances to which I think too little attention has hitherto been paid. They are those evidences of organic disease which occasionally present themselves in the structure of the *kidney*, and which, whether they are to be considered as the cause of the dropsical effusion or as the consequence of some other disease, cannot be unimportant. Where those conditions of the kidney to which I allude have occurred, I have often found the dropsy connected with the secretion of albuminous urine, more or less coagulable on the application of heat. . . . I have never yet examined the body of a patient dying with dropsy attended with coagulable urine, in whom some obvious derangement was not discovered in the kidneys."

The appearance of the coagulated albumen is not always quite the same: "most commonly when the urine has been exposed to the heat of a candle in a spoon, before it rises quite to the boiling point it becomes clouded, sometimes simply opalescent, at other times almost milky, beginning at the edges of the spoon and quickly meeting in the middle. During some part of the progress of these cases of anasarca, I have in almost all instances found a great tendency to throw off the red particles of the blood by the kidneys, betrayed by various degrees of

hæmaturia, from the simple dingy colour of the urine, which is easily recognised, or the slight brown deposit—to the completely bloody urine. . . . In all cases in which I have observed the albuminous urine, it has appeared to me that the kidney has itself acted a more important part, and has been more deranged both functionally and organically than has generally been imagined. In the latter class of cases I have always found the kidney decidedly disorganised. In the former, when very recent, I have found the kidneys gorged with blood. . . . It is



The Clinical Wards in which Bright carried out his observations were two, each in Clinical Building; they were exactly alike. John Ward was for male patients. The accompanying photograph shows the interior of Miriam, the ward for female patients.

now nearly twelve years since I first observed the altered structure of the kidney in a patient who had died dropsical; and I have still the slight drawing which I then made. It was not, however, till within the last two years that I had an opportunity of connecting these appearances with any particular symptoms, and since that time I have added several observations. I shall now detail a few cases, beginning with the two first, in which I had an opportunity of connecting the fact of the coagulation of the urine with the disorganised state of the kidneys.”

Then follow the clinical notes of twenty-three cases to illustrate this point. All were patients during the years 1825, 1826 and 1827, and almost all were inmates of Guy's Hospital,

“KIDNEY IN DROPSY.”



“FIG. 1. External view of one of the kidneys of KING, from half of which the tunic is removed, showing an advanced stage of that granulated condition of the organ which was in this case connected with the secretion of albuminous urine. Anasarca and hydrothorax accompanied the disease.”



“FIG. 2. A longitudinal section of the same kidney, showing the most advanced stage of the granular charge.”

and most of them came from the Clinical Ward. Considerably over a half were fatal; a post-mortem examination was made on all that died. The account of this examination is very full, the kidneys are described, there is a series of beautifully coloured plates to show the appearance of the kidneys, and there is a short commentary on each case. It is impossible here to reproduce the cases in detail, but we may mention the first of a series which has influenced the course of medicine profoundly. John King, aged thirty-four, an intemperate sailor, was admitted into Clinical Ward, Guy's Hospital on October 12, 1825 under the care of Dr. Bright, suffering from general oedema, scanty urine and pain in the loins. He had hæmaturia, but this passed away, and the urine, when clear, coagulated when heated; the pulse was hard. The *sectio cadaveris* revealed acute pericarditis, oedema of the lungs, pleural effusion, a large heart and ascites. "The kidneys were completely granulated throughout; externally the surface rough and uneven; internally all traces of natural organisation nearly gone, except in the tubal parts." There is a coloured picture (here reproduced) of them in Plate I. In the commentary Bright says, "This is a well-marked example of a granulated condition of the kidneys, connected with the secretion of coagulable urine." He inclines to the opinion that the "disease of the kidney was the first established." He considers that neither the disease of the lungs, pleura nor heart was the primary condition, nor was there any disease of the liver to explain the ascites. He points out that pain in the loins is frequently a symptom of renal disease, and that "the tendency to inflammatory affection in this man was a striking feature in his case, and appears to me connected immediately with the condition of the kidneys."

The plate illustrating the state of the kidneys shows a chronic granular kidney with a diminution of the cortex, or, as we should say, interstitial nephritis, and it is also clear that there is abundant tubal change. Therefore John King becomes a classic case, presenting all the essential symptoms of chronic renal disease and the first recorded case in which they were successfully correlated with the condition found after death.

Bright's next allusion to renal disease is in the second of his Gulstonian lectures,* which were delivered in 1833. Then, as now, "team work" was carried out at Guy's, for he says: "I have lately had great assistance from the intelligent and zealous co-operation of three of my young friends and pupils, Mr. Barlow, Mr. Tweedie and Mr. Rees." They examined the urines of two hundred and ninety-six patients; many samples

* *London Medical Gazette*, Vol. XII, p. 378.

gave no precipitate either with heat or nitric acid, many gave a precipitate with only one, but twenty-six gave a precipitate with both. Bright points out that phosphates and urates must be distinguished from albumen; all these three may be present in health, but he clearly appreciates the importance of albuminuria, for he says: "In the natural and healthy condition of the urine little or no albumen is to be detected." The specific gravity of the urine is very variable. In many cases of albuminous urine there is an excess of urea in the blood. He describes the varieties of nephritis found in the post-mortem room, and says that both anasarca and albuminuria may be absent in renal disease. He alludes to the enlargement of the heart, the serous effusions, the headache, the coma, and cerebral hæmorrhage found in association with disease of the kidneys, and he reaches this conclusion: "My conviction is complete as to the existence of some decided connection between the three facts—anasarca, coagulable urine and diseased function going on to diseased structure of the kidney."

His final and most extensive communication on the subject of nephritis appeared in the first volume of the *Guy's Hospital Reports*, published in 1836. It consists of two papers. The first is entitled "Cases and Observations Illustrative of Renal Disease accompanied with the Secretion of Albuminous Urine." The second follows it immediately and is called "Tabular View of the Morbid Appearances Occurring in One Hundred Cases in Connection with Albuminous Urine."

I will now reprint these papers, but as they occupy sixty-five pages of the *Reports*, they will be condensed. The original words will, however, be given.

The first paper runs thus:—

"The importance and extensive prevalence of that form of disease, which, after it has continued for some time, is attended by the peculiar changes in the structure of the kidney, now pretty generally known by the names of 'mottling,' 'white degeneration,' 'contraction,' or 'granulation,' impresses itself every year more and more deeply on my mind; and whether I turn to the wards of the hospital, or reflect on the experience of private practice, I find, on every side, such examples of its fatal progress and unrelenting ravages, as induce me to consider it amongst the most frequent, as well as the most certain causes of death in some classes of the community; while it is of common occurrence in all; and I believe I speak within bounds, when I state, that not less than five hundred die of it annually in London alone. It is, indeed, an humiliating confession, that, although much attention has been directed to this disease

for nearly ten years, and during that time there has probably been no period in which at least twenty cases might not have been pointed out in each of the large hospitals of the metropolis—and there is reason to believe that double that number may, at this moment, and at all times, be found in the wards of Guy's Hospital—yet little or nothing has been done towards devising a method of permanent relief, when the disease has been confirmed; and no fixed plan has been laid down, as affording a tolerable certainty of cure in the more recent cases. I believe that our want of success, in what are considered the more recent attacks, is frequently owing to the fact, that the disease is far more advanced than we suspect, when it first becomes the object of our attention; and I am most anxious, in the present communication, to impress upon the members of our profession the insidious nature of this malady, that they may be led to watch its first approaches, with all the solicitude which they would feel on discovering the first suspicious symptoms of phthisis or of epilepsy. There is great reason to suppose that the seeds of this disease are often sown at an early period; and that intervals of apparent health produce a false security in the patient, his friends, and his medical attendants, even where apprehension has been early excited.

“The first indications of the tendency to this disease is often hæmaturia, of a more or less decided character; this may originate from various causes, and yet may give evidence of the same tendency: scarlatina has apparently laid the foundation for the future mischief. . . . Intemperance seems its most usual source; and exposure to cold the most common cause of its development and aggravation. . . .

“The history of this disease, and its symptoms, is nearly as follows:—

“A child, or an adult, is affected with scarlatina, or some other acute disease; or has indulged in the intemperate use of ardent spirits for a series of months or years: he is exposed to some casual cause or habitual source of suppressed perspiration: he finds the secretion of his urine greatly increased, or he discovers that it is tinged with blood; or, without having made any such observations, he awakes in the morning with his face swollen, or his ankles puffy, or his hands œdematous. If he happen, in this condition, to fall under the care of a practitioner who suspects the nature of his disease, it is found, that already his urine contains a notable quantity of albumen: his pulse is full and hard, his skin dry, he has often headache, and sometimes a sense of weight or pain across the loins. Under treatment more or less active, or sometimes without any

treatment, the more obvious and distressing of these symptoms disappear; the swelling, whether casual or constant, is no longer observed; the urine ceases to evince any admixture of red particles; and, according to the degree of importance which has been attached to these symptoms, they are gradually lost sight of, or are absolutely forgotten. Nevertheless, from time to time the countenance becomes bloated; the skin is dry; headaches occur with unusual frequency; or the calls to micturition disturb the night's repose. After a time, the healthy colour of the countenance fades; a sense of weakness or pain in the loins increases; headaches, often accompanied by vomiting, add greatly to the general want of comfort; and a sense of lassitude, of weariness, and of depression, gradually steal over the bodily and mental frame. Again, the assistance of medicine is sought. If the nature of the disease is suspected, the urine is carefully tested; and found, in almost every trial, to contain albumen, while the quantity of urea is gradually diminishing. If, in the attempt to give relief to the oppression, of the system, blood is drawn, it is often buffed, or the serum is milky and opaque; and nice analysis will frequently detect a great deficiency of albumen, and sometimes manifest indications of the presence of urea. If the disease is not suspected, the liver, the stomach, or the brain divide the care of the practitioner, sometimes drawing him away entirely from the more important seat of disease. The swelling increases and decreases; the mind grows cheerful, or is sad; the secretions of the kidney or the skin are augmented or diminished, sometimes in alternate ratio, sometimes without apparent relation. Again, the patient is restored to tolerable health; again he enters on his active duties: or he is, perhaps, less fortunate;—the swelling increases, the urine becomes scanty, the powers of life seem to yield, the lungs become œdematous, and, in a state of asphyxia or coma, he sinks into the grave; or a sudden effusion of serum into the glottis closes the passages of the air, and brings on a more sudden dissolution. Should he, however, have resumed the avocations of life, he is usually subject to constant recurrence of his symptoms; or again, almost dismissing the recollection of his ailment, he is suddenly seized with an acute attack of pericarditis, or with a still more acute attack of peritonitis, which, without any renewed warning, deprives him, in eight and forty hours, of his life. Should he escape this danger likewise, other perils await him; his headaches have been observed to become more frequent; his stomach more deranged; his vision indistinct; his hearing depraved; he is suddenly seized with a convulsive fit, and becomes blind.

He struggles through the attack; but again and again it returns; and before a day or a week has elapsed, worn out by convulsions, or overwhelmed by coma, the painful history of his disease is closed.

“Of the appearance presented after death, enough will be said in another part of the present communication: but one question may be asked in this place—Do we always find such lesion of the kidney as to bear us out in the belief, that the peculiar condition of the urine, to which I have already referred, shews that the disease, call it what we may, is connected necessarily and essentially with the derangement of that organ? After ten years’ attentive—though, perhaps, I must not say completely impartial observation—I am ready to answer this question in the affirmative; and yet I confess that I have occasionally met with anomalies which have been somewhat difficult to explain. . . .”

“There has not yet, perhaps, been sufficient time, since this disease of the kidneys first attracted attention, to say to what extent life may be prolonged while the body is under its influence; but I believe with care, its fatal effects may be kept at bay, and a hazardous life may be protracted for many years. Should that care be neglected, the chance of life will be greatly diminished.

“The cases which I now offer will be found to bear upon many points in the history I have just sketched out; and amongst others, will tend to illustrate the subject of the probable duration of the disease, and some of the more insidious attacks which attend the fatal termination.”

Here Bright introduces the clinical and post-mortem accounts of ten cases of albuminous urine with nephritis. If we except the retinitis (there were no ophthalmoscopes in those days) and the measure of the blood pressure, every ordinary clinical symptom is mentioned; deaths from uræmia, cerebral hæmorrhage, and acute inflammation of serous membranes are all recorded. To illustrate the marvellous completeness of Bright’s powers of observation it may be mentioned that he knew that sometimes vision was impaired and that sometimes the pulse was hard.

To proceed in his own words—

“Nothing can be more striking than the similarity which is observable in all these cases. I am not aware of any disease in which the character is more completely preserved, or in which the symptoms more clearly mark a specific form of malady. In the first eight cases, the termination, as well as the progress of the disease, bore the most perfect resemblance; and the

peculiar train of cerebral symptoms, by which their advanced stages have been attended, have little analogy, when taken as a whole, with the symptoms of any other cerebral affection. The two last cases differ from the rest only in their mode of termination; and I have related them as the two most recent illustrations of a very frequent result of the disease.

“Of the insidious nature of this malady, and its fatal tendency, these cases afford a pretty convincing proof: and the fact that so many of these have come within my own observation in a limited time, would be tolerable evidence of the extreme frequency of the disease. Yet the cases I have now detailed, but more especially the many more which the length of the present communication obliges me to defer, are chiefly such as I have, without any intention of publication, chanced to enter in my note-book, and form but a small portion of those which I have seen: but, in order to obtain a more accurate idea of the actual prevalence of the disease, it is necessary to have recourse to another species of evidence: and accordingly, in the winter of 1828–9, I instituted a series of experiments, by taking the patients promiscuously, as they lay in the wards, and trying the effects of heat upon the urine of each, and at the same time employing occasionally other re-agents. The whole number I took amounted to a hundred and thirty; out of which no less than eighteen proved to have urine decidedly coagulable by heat: and in twelve more, traces of albumen were found: giving, therefore, an average of at least one in six, if not one in four of the whole number. In order to shew how the experiment was made, and the nature of the table I constructed, I will introduce six consecutive cases out of a male, and six out of a female ward; and it is worth remarking, that in every instance, where the result allowed us to ascertain the state of the kidneys, it corresponded with the diagnosis yielded by the table. Those who had albuminous urine were found to have more or less of this disease in the kidneys; whilst those whose urine did not coagulate by heat had kidneys without disease.”

The author then discusses the treatment. He doubts “whether we have it in our power, as yet, even at the earliest periods, to destroy the liability to relapse, or overcome the morbid tendency; but at all events, the management of the early stage of the disease is easy, when compared with the treatment in its more confirmed and protracted forms. . . . I cannot, from my own experience, entertain a hope that diaphoretics are capable of curing any large proportion of confirmed

cases. . . . Till this symptom (albuminuria) be removed the disease certainly exists: and even when it is removed, it is often absent but a short time, and it is, for many years, liable to return. It can never be sufficiently impressed on the minds of practitioners, that the anasarca . . . is but a symptom." But he says anasarca may be absent throughout or it may disappear and yet the disease be fatal. As diaphoretics he used antimonial powders, compound ipecacuanha powder and liquor ammoniæ acetatis, with the warmth of the bed, a warm bath, fomentations and large linseed poultices. He is particularly insistent on the necessity of keeping the skin warm; hence he advises an inner dress of flannel and residence in a suitable climate. Bleeding may be useful in the earlier stages, but with regard to the later periods "when we call to mind the constant loss of albuminous matter which the system is sustaining by the kidneys, and the peculiar pallid hue which the patient assumes, we shall pause before we venture to afford temporary alleviation, at a still further expense of the more nutritious and stimulating portions of the blood."

Cupping the nape of the neck may relieve the headache, and a few leeches to the loins may assuage the pain there. He calls attention to the value of acupuncture for œdema, but "all attempts to draw off the serum by mechanical means should be most cautiously conducted; for the powers of repair are weak and there is a great tendency to erythematous inflammation." He is opposed to the use of mercury. Elaterium used with care may be beneficial. "With regard to diuretics, I have generally wished to abstain from all except digitalis. . . . I look upon this class of remedies, however, in the light of a necessary evil in some cases; and do not feel authorised in recommending their employment. . . . A great deal still further depends upon diet. Where milk is grateful, if it sits easily on the stomach, and is freely digested, I believe it to be one of the best aliments which can be taken. . . ." The great rule is to avoid everything which obviously deranges the stomach, and to take tonic and nutritive food. "The less of wine and spirituous liquors is taken, the better."

Every precaution must be taken to avoid chill to the surface or check perspiration. If exercise be taken, it must be gentle. This surely is a masterly exposition of the treatment of what was then a new disease, and now nearly a century later we cannot do any better.

Bright's second paper in the *Guy's Hospital Reports* begins with a tabular view of the morbid appearances occurring in one

hundred cases in connection with albuminous urine. The details are extraordinarily complete and testify to the care with which the examinations were made. "In almost all I have been present at the examination after death." His comments on the cases are as follow:—

"From the analysis of the foregoing tabular view, many curious facts respecting the derangement of different organs connected with granular kidneys are brought to light; for it is most probable, that a hundred cases of one disease, collected at different times, and with no particular object in view, will yield results which will, in the main, be borne out by the comparison of any other equal number of cases of the same disease. The first circumstance which strikes the mind, is the extent and frequency to which the derangement of one organ is connected with the derangement of several others: yet we are not at liberty to assume, that the disease of the kidney has been the primary cause on which the disease of the rest depended. It may be, that some other organ has first suffered, and that the kidneys, together with the rest, have become involved. I confess I am inclined to believe that the kidney is the chief promoter of the other derangements. The only organ, except the kidney, which I think, on taking a review of the history of this disease, might probably act as the primary cause, is the skin; and this is so closely connected in its derangements with the kidney, that the relations of their lesions, as regards cause and effect, become equivocal. It is, however, to be held in mind, that the secretion of the skin is quite as much interrupted, for a time, in many other states of disease, without the albumen making its appearance in the urine; in diabetes, for instance, in jaundice, and in certain stages of various inflammatory and febrile diseases. Moreover, it is not a fact, that in every case, or during the whole course of the disease under consideration, the skin is not perspirable: on the contrary, we often establish, for many months, the secretion of the skin, while the urine remains albuminous; as we occasionally succeed in doing in cases of diabetes, without essentially changing the character of the urine. In almost every case, the first impression which brings on the anasarca is suppression of perspiration; but it is almost as constantly the fact, that the kidneys have undergone some previous irritation, and very likely that the albuminous urine, in most cases, existed previously to the occurrence of those symptoms by which it has been recognised, more particularly previous to the anasarca.

"The changes effected in the blood by the long continuance of this disease are quite sufficient to account for its most extensive

derangement. The extraordinary manner in which the blood becomes impoverished and robbed every successive day of a portion of its most nutritive parts must, of itself, be considered a most efficient cause of predisposition to disease; and the fact, established now by a great accumulation of evidence, and supported by the names of Prout and Bostock, of Christison, Gregory, Babington, and others, that the chemical qualities of the blood are so far changed, that urea is to be detected in that fluid, or, at all events, certain constituents scarcely distinguishable from it, is still further to be viewed as a source of disease springing immediately out of the defective action of the kidney. On the other hand, it cannot be denied, that if the function of the skin is suddenly interrupted, derangements are likely to arise in various organs; and as, in many instances, the kidney most evidently receives a very injurious impression from the suppression of the perspiration; so other organs may be in turn affected through the same medium. I do not therefore by any means assert, that all the lesions which the foregoing table details, flow as a consequence from the kidney alone; but that they are such derangements as generally co-exist with this peculiar disease of that organ.

“The principal lesions display themselves in the circulating and respiratory systems, and in the serous membranes. The heart and the lungs, the pleura, the arachnoid and the peritoneum, have, in a large majority of cases, shewn marks of disease; while the liver, the spleen, the pancreas, and even the intestines, have frequently been, to all appearance, in a state of health, and have comparatively seldom given proof, by their structure, of any peculiarly diseased action. Of all the membranes, the pleura has decidedly been most often diseased; but that disease has, in forty cases, consisted of old adhesion; which, though it might have been connected with the first attack of renal disease, or might have taken place at some later period, in connection with that affection, may probably only mark the liability of the individual to be affected by atmospheric changes, and may have been the result of some casual inflammatory attack. At all events, the twenty-six cases in which the pleura was apparently healthy, and in three of which its freedom from disease is distinctly stated, prove, that however general a limited inflammatory action of the pleura may have been, it forms no essential part of the disease. That the pleura is, however, liable to inflammatory action, in a large proportion of these cases, may be inferred from the sixteen instances of recent inflammation; while the serous effusion, which has occurred in forty-one cases, has been connected with that general loss of

balance between the actions of the exhalents and the absorbents which is obvious in every part of the system.

“The same tendency to disease which is manifest in the pleura, shews itself, though in a less degree, in other serous membranes. In the pericardium, we have found six instances of old adhesion, twelve or thirteen of well-marked, recent, and often most acute inflammatory action; and twenty-three of the effusion of clear serum, in three of which a false membrane had been formed by chronic action: and again, looking to the arachnoid, we find that membrane rendered opaque, probably by a more or less severe inflammatory action, in thirteen cases; while well-marked serous accumulation had taken place beneath it in twenty-nine cases, and had partially distended the ventricles in six.

“The deviations from health in the heart are well worthy of observation; they have been so frequent, as to shew a most important and intimate connection with the disease of which we are treating; while at the same time there have been twenty-seven cases in which no disease could be detected; and six others, which, from not having been noted, lead to the belief that no important deviation from the normal state existed. The obvious structural changes in the heart have consisted chiefly of hypertrophy with or without valvular disease: and what is most striking, out of fifty-two cases of hypertrophy, no valvular disease whatsoever could be detected in thirty-four: but in eleven of these thirty-four, more or less disease existed in the coats of the aorta; still, however, leaving twenty-two without any probable organic cause for the marked hypertrophy generally affecting the left ventricle. This naturally leads us to look for some less local cause, for the unusual efforts to which the heart has been impelled: and the two most ready solutions appear to be, either that the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately; or, that it so affects the minute and capillary circulation, as to render greater action necessary to force the blood through the distant sub-divisions of the vascular system. The valves chiefly affected have been the semilunar valves of the aorta and the mitral; and in three cases, the tricuspid has been somewhat deranged. In three cases, likewise, the disease of the valves has been unattended by any hypertrophy of the heart.

“It is observable, that the hypertrophy of the heart seems, in some degree, to have kept pace with the advance of disease in the kidneys; for in by far the majority of cases, where the muscular power of the heart was increased, the hardness and contraction of the kidney bespoke the probability of a long

continuance of the disease. Six cases are noted, in which the heart was soft and flaccid, and four in which it was unusually small; and in most of these, though not in all, the disease of the kidney had not proceeded to the state of contraction and hardness.

“The principal diseases of the lungs have been œdema and bronchitis, frequently attended by an emphysematous condition of certain portions. Œdema has occurred in thirty-one cases; and it is very commonly the immediate cause of dissolution, or of the increased distress towards the approaching termination of the chronic form of the disease. In six cases, recent, and in five old, traces of pneumonia were found; while the embarrassment to the circulation, caused by these various diseases of the heart and lungs, had occasionally given rise to the effusion of blood into the tissue of the lungs, in the form which is now known by the term of pulmonic apoplexy. The instances in which phthisis, or any form of scrofulous or tuberculous disease, has been connected with the renal affection, have been decidedly rare; so that in only four cases has recent phthisis developed itself: and what is somewhat remarkable, in more than double that number the disease seems to have made a certain inroad upon the upper lobes of the lungs, and then to have sunk into a state of quiescence, or entirely subsided; from which we should perhaps be inclined to infer, that so far from these diseases being associated, the condition of the body in this form of renal disease is unfavourable to the existence of phthisis, or that it is certainly not peculiarly apt to occur in tuberculous constitutions.

“With regard to the liver and the abdominal viscera generally, as compared with the heart and lungs, a very great immunity from structural disease is to be observed; a fact the more remarkable, as the habits of intemperance with which the renal disease is so frequently connected are those which might be expected to act very directly on the liver and digestive organs; indeed, to this day, the impression is so strong, as to the injurious effects of stimulants being manifested chiefly on the liver, that the majority of practitioners no sooner see the bloated countenance of anasarca connected with the history of intemperance, than they proceed to consider in what way the depraved action of the liver is to be corrected, and its morbid changes retarded. Looking to the tables before us, a very different conclusion forces itself upon our mind, as to the condition of the liver in general anasarca, and in that state of cachexia which often attends upon intemperate habits. We here find, in thirty-one cases, the liver distinctly stated to be

healthy; and in nine other cases, so free from all suspicion of deranged action, as to be pointed out as remarkable specimens of the healthy organ; thus making forty in the hundred free from disease. In thirty-two cases, any deviation from the natural appearance was exceedingly slight; and was, in a large proportion of them, nothing more than that mottled state which is derived from the irregular distribution of blood throughout the texture—a condition very frequently observed, where the circulation through the chest is obstructed. The instances of confirmed disease structure did not amount to above eighteen. There seemed to be no marked connection between the condition of the kidney and of the liver; for nearly one half of those cases which were stated to be remarkably healthy were coupled with the hard and probably most advanced form of the disease, while the other half occurred in cases apparently less advanced; and the more severe cases of hepatic derangement accompanied every variety of the disease in the kidney. The only two instances of fatty degeneration in the liver were in cases where the kidney was soft, smooth and white; but in another, where the liver was somewhat fatty, the kidney was hard, rough and lobulated.

“The stomach seems, in many cases, to have suffered from the excessive use of stimulants. In eighteen cases, the effects of irritation on the mucous membrane have been recorded; and as this is an organ which is more likely to pass unnoticed than the liver and some others, it is probable that this number would have been increased if its condition had been more constantly or accurately examined and noted.

“The spleen and the pancreas have very generally been mentioned as healthy.

“The intestines have, in several cases, though not very generally, shewn marked signs of disease. In about nineteen, the small intestines have been irritated in some portions of their courses—in a few of these, ulceration has taken place; and in seven cases the colon or cæcum has been diseased; but several of these have occurred in conjunction with tubercles in the lungs, and have therefore been scarcely ascribable to the peculiar circumstances of this disease.

“The diseases in the substance of the brain itself have chiefly consisted of that unequal distribution of blood which is apt to produce a mottled appearance when the medullary substance is exposed in slices, and which is frequently attendant on convulsive or apoplectic seizures. In some cases the brain has been exsanguine; and in a few, the results of such lesions as the rupture of vessels may produce, have been observed.

"The foregoing table likewise affords an instructive average of the immediate causes of death in this disease. I have been able to trace the circumstances connected with the conclusion of life in seventy cases; and find, that no less than thirty out of these seventy have died of well-marked symptoms of cerebral derangements, noted under the titles of 'apoplexy,' 'coma,' 'convulsion,' and 'epilepsy.' Eight others have died suddenly. In eight cases the obstructed condition of the lungs has been the immediate cause of death; and in three the effusion into the chest has hastened the dissolution. Next to head affections the most prevalent diseases have been inflammatory attacks in the serous membranes; amongst which are five well-marked cases of peritonitis, three of pericarditis, one or two of pleuritis. Diarrhoea and other exhausting diseases have carried off several; and in every case, except two or three, the death appears to have been the result, not of casual disease, but of such events as may be said strictly to belong to the condition of the kidney of which we have been treating.

"One other point suggests itself as capable of some illustration from the foregoing table—the period of life in which most have fallen a sacrifice to this disease, and the probable degree to which it shortens life. In seventy-four cases the age has been recorded; and of these, four only have survived beyond their sixtieth year; thirteen have passed their fiftieth year; but few of them have lived to fifty-five: twenty-one have died between forty and fifty; sixteen have passed thirty years; and nineteen have died before they had arrived at their thirtieth year: and if we take those who have died in their forty-fifth year and below that age we find that the large proportion of fifty out of seventy-four have sunk before the meridian of life. The youngest, whose age is given, is only eight, and there is one advanced to seventy-three; showing, therefore, that neither youth nor age is exempt from this disease, but that it has cut off the greater part of its victims before the middle period has been attained."

It will be observed that Bright, with the inspiration of genius, arrives at the belief that the primary cause of the symptoms in all these cases is disease of the kidneys. He points out the great importance of the function of the skin, he shows that serous effusion into the pleural, pericardial and peritoneal cavities, acute pleurisy, pericarditis and peritonitis, hypertrophy of the heart, œdema of the lungs, bronchitis, enteritis, and cerebral hæmorrhage are all accompaniments to be found in patients dying of nephritis. He shows these may be fatal, and

he tells of the terminal cerebral symptoms which we now call uræmic convulsions and coma.

Assuredly this is one of the most wonderful series of papers in medical literature. A disease, which presents symptoms of derangement of almost every organ of the body, is unerringly ascribed to the kidney. We are shown how to diagnose it. Its causes, its symptoms, its treatment and its post-mortem appearances are given with such a completeness and accuracy that after nearly a century no error has been detected in Bright's description, and, if we except a few facts that have been gleaned by instruments he did not possess, nothing of importance has been added.

Bright's enthusiasm for the study of renal disease continued, and in 1842, with the willing permission of Mr. Harrison, the famous Treasurer who did so much for the school, and with the hearty co-operation of the other physicians, the whole of both the male and female clinical wards were, from May to October 1842, set aside for the admission of cases of renal disease only, and they were under the care of Bright. This, as he says, is "the first experiment which, as far as I know, has yet been made in this country to turn the ample resources of a hospital to the investigation of a particular disease, by bringing the patients labouring under it into one ward properly arranged for observation." A small laboratory "was fitted up and decorated entirely to our purpose." Bright was helped by Dr. Barlow, who was assistant physician, and by Dr. Rees, who became assistant physician in 1843, and these two published in the *Guy's Hospital Reports* for 1843 the results of their labours, which corroborated Bright's original statements.

In the *Medical Gazette* for January 28, 1842, is a letter from Bright saying that since 1839 he and Mr. George Robinson had been making microscopic investigations of one thousand specimens of the kidneys of about one hundred patients suffering from nephritis, and that they hope to publish a work on the Anatomy and Pathology of the Kidney. As far as I know this never appeared, but Robinson, who was a student at Guy's under Bright, in 1842 published "*An Enquiry into the nature and pathology of granular disease of the kidney and its mode of action in producing albuminous urine*," which he dedicated to Bright.